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CONTENTS

Work of the National Research Council: DR. VERNON KELLOGG 337

Collecting Peripatus in New Zealand: DR. DAYTON STONER 341

The Second Pan-Pacific Science Congress: PROFESSOR WILLIAM HERBERT HOBBS 342

Scientific Events:

Delonza Tate Wilson; The Forest Reserves of the State of New York; The Aldred Lectures of the Massachusetts Institute of Technology; The New England Intercollegiate Geological Excursion; Botany at Cincinnati 343

Scientific Notes and News 345

University and Educational Notes 348

Discussion and Correspondence:

The Fire in California: PRESIDENT W. W. CAMPBELL. *Apples, Worms, Philosophers and Goats:* PROFESSOR F. H. PIKE. *Pachyostosis:* PROFESSOR ROY L. MOODIE 348

Quotations:

Contract Medical Practice in England 351

Special Articles:

On the Influence of a Rotating Magnetic Field: DRS. FREDERICK W. and FERDINAND C. LEE 352

The American Association for the Advancement of Science:

The Los Angeles Meeting 353

Science News x

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WORK OF THE NATIONAL RESEARCH COUNCIL[1]

THE National Research Council has had a year of much activity and, as it seems to the secretary, of creditable achievement. The work has been carried on along the lines and by the methods which have gradually come, through experience, to be recognized as probably the most advantageous ones which the council can adopt. These lines of work and methods involve and maintain a very wide contact on the part of the council with the scientific organizations and men of this country and of various foreign countries, these organizations and men representing both fundamental science and its applications. The actual membership of the council, which democratically controls the council's policies and work, is chiefly composed of accredited representatives of more than seventy national scientific and technical societies. Relations with foreign workers and organizations are closely maintained through the International Research Council and its affiliated International Unions, representing different special fields of science. Certain of the National Research Council's special divisions of science and technology are the officially recognized American sections of the International Unions.

Contact with the colleges and universities of the country is maintained by the council especially through its division of educational relations; with the government's various scientific bureaus through the division of federal relations; and with the activities of the various state scientific boards and bureaus through the division of states relations. Relations with the industrial research laboratories of the country, and with applied science in general, are maintained through the council's divisions of engineering, research extension, physics, and chemistry and chemical technology.

The council has been entrusted during the year with the responsibility of expending considerable sums of money given by various foundations, industrial concerns and individuals for the support of various special undertakings in the way of promotion, organization and carrying out of scientific work and research.

[1] Statement of activities for the year July 1, 1922–June 30, 1923, based on a fuller report made to the Carnegie Corporation of New York, from which the Council, through the National Academy of Sciences, derives an annual income.

These will be specifically referred to later in this report. The total budget for the year, not including the money spent in constructing the new building for housing the National Academy of Sciences and the Council, has been about half a million dollars.

NEW BUILDING

Work has gone forward steadily on the construction of the monumental new building in Washington for the joint use of the academy and the council, and the building should be ready for occupancy in the late autumn of this year (1923). The building is situated on the block of land lying between 21st and 22nd and B and C streets, and faces the Lincoln Memorial. The land was purchased at an expense of about $185,000 provided by gifts from twenty private donors. The total cost of the building and equipment will be about $1,350,000.

RESEARCH FELLOWSHIPS

Perhaps the most outstanding new undertaking of the council during the past year, and that one supported by the largest new gift of money, is the establishment of a series of post-doctorate research fellowships in the biological sciences, including zoology, botany, general physiology, anthropology and psychology. For these fellowships the Rockefeller Foundation has pledged to the council $325,000 to be expended during the five-year period, July 1, 1923–June 30, 1928, no more than $75,000 to be expended in any one year.

These fellowships in the biological sciences, added to those already similarly provided for by the Rockefeller Foundation in physics and chemistry ($500,000 to be expended during six years) and by the Rockefeller Foundation and General Education Board, jointly, in the medical sciences ($500,000 to be expended during five years), constitute a most important addition to the possibilities of actual research work in this country as well as an opportunity for the development of a group of carefully selected, highly trained and eager research workers. The total sum of $1,325,000 available to the council for the maintenance of these fellowships will provide comfortably for the work, for a number of years, of about 100 competent fellows each year.

The selection of these fellows and the general supervision of their work and the administration of the special funds for their maintenance are in the hands of three special boards of eminent scientific men chosen by the council.

SPECIAL CONFERENCES

One of the most satisfactory methods used by the council in connection with the promoting, planning and organizing of new undertakings or research projects, especially those in which a considerable cooperative effort is aimed at, is the calling together of special conferences of selected experts from all over the country to meet with officers and members of the council for the consideration of the best methods of attacking special problems and for planning and organizing the research needed in connection with them. Out of such conferences have grown a considerable number of permanent or temporary special organizations, or active major committees which carry on, under the general sponsorship of the council, the actual work of research and organized undertaking.

Among such conferences held during the past year may be mentioned one arranged for by the Advisory Board on Highway Research (November 23, 1922); one on Problems of Human Migrations, with special consideration of the scientific aspects of immigration into America (November 18, 1922); one on Occupational Terminology and Specifications, called by the special request of the Secretary of War (January 6, 1923); one on Vocational Guidance (January 26, 1923); one composed of Scientific Instrument Makers and Users (March 23 and 24, 1923); one on Scientific Bibliography in general and the work of the Concilium Bibliographicum in particular (March 31, 1923); and one of workers in Cattle-breeding (April 27–28, 1923).

CROP PROTECTION INSTITUTE

This institute for the promotion and maintenance of research in connection with the insect and plant pests of American crops, which was developed by the initiative and assistance of the council, and comprises a membership of nearly 300 professional economic entomologists, plant pathologists and agricultural chemists, together with representatives of 41 chemical and general industrial companies interested in the manufacture of fungicides, insecticides and apparatus for their use, is now a permanent and self-supporting organization of much vigor and activity. During the past year it has had about $35,000 to spend on research projects and has, in addition, maintained three special research fellowships.

Another scientific institute, similarly set up largely by the initiative and under the sponsorship of the council for the promotion of more scientific methods in the making of chronometers, watches and other related instruments of precision, and known as the Horological Institute, is now on a permanent and practically independent basis, and is showing a praiseworthy activity.

CONCILIUM BIBLIOGRAPHICUM

This institution of biological bibliography, established in Zurich, Switzerland, in 1895 by a well-

known American zoologist, Dr. H. H. Field, and which had developed a useful system of prompt bibliographic service in both card and book form for zoologists, anatomists, physiologists and paleontologists, was nearly wrecked by the war and the sudden death of the founder and manager. As about one third of the subscribers to its bibliographic service were American universities, libraries, scientific organizations and workers, it seemed advisable to try to bring special American effort and support to bear on the situation.

The National Research Council, with the financial assistance of the Rockefeller Foundation to the extent of $85,000, has been able to rehabilitate the concilium and to arrange to assist in its maintenance through a period of five years. The concilium, with Dr. J. Strohl, of the University of Zurich, at its head, has been thoroughly reorganized during the past year under the direction of a special commission representing the National Research Council and the Swiss Society of Natural Science, and has nearly caught up with its preparation and distribution of bibliographic references to papers and books published during and since the war.

UNION OF AMERICAN BIOLOGICAL SOCIETIES

There is nearly a score of major American national biological societies, each representing the interests of a special limited field of biology, but there has been little affiliation or cooperation among them to advance the interests of biology in general. Yet there has been constant need of this, in connection particularly with such general interests as proper means of publication and of the abstracting and indexing of publications and of biological bibliography in general.

The National Research Council, through its division of biology and agriculture, has, on request, interested itself energetically in this matter, and has materially helped in the formation of a Union of American Biological Societies, to which eighteen major societies, including Sections F, G, N and O of the American Association for the Advancement of Science, have now formally given their adherence.

After several preliminary conferences, official representatives of all these societies met in the council's rooms in Washington on April 26 of this year and organized a council of the union and then appointed a smaller executive committee. At this meeting, also, a Joint Publications Committee of the Union and the division of biology and agriculture of the National Research Council made a report on the problem of providing all of biology with adequate abstracting and indexing facilities.

RECENT IMPORTANT PROJECT COMMITTEES

Among the recent major committees of eminent important research undertakings is one on research men of science set up to organize and develop certain on sex problems, composed of members representing the special sciences of biology, physiology, psychology, psycho-pathology and sociology. This committee was organized in 1922 and made a preliminary report on policy and program for its work in March of that year. A sum of $25,000 was made available for the support of the work during the year July 1, 1922–June 30, 1923 by a private donor and the committee has outlined and supported a series of specific investigations during the year, most of which have yielded substantial results. The committee has formulated a program of work for the next two years, which has been assured of financial support to the extent of $50,000 a year.

Another important committee of distinguished membership, representing various fields of biological science and of sociology, has been established by the council for the study of scientific problems of human migrations, with especial regard to American immigration problems. The organizing work of this committee has been supported during the past year by a gift of $5,000 from the Russell Sage Foundation. The committee has carefully prepared an extended program of biological, psychological, sociological and economic special investigations, to carry out which the Laura Spelman Rockefeller Memorial has given $60,000 to the council.

A committee for aiding Russian scientists to obtain American scientific books, journals and papers published since January 1, 1915, was organized by the council, but because of the council's relation to the government through the National Academy of Sciences, was reorganized as a private committee under the chairmanship of the permanent secretary of the council. A cooperative arrangement was established with the American Relief Administration engaged in extensive relief work in Russia under the chairmanship of Honorable Herbert Hoover. By this arrangement all work and expenses of warehousing, repacking, over-sea transportation and final detailed distribution in Russia were assumed by the American Relief Association. Requests were sent by the committee to American publishing houses, government scientific bureaus, national scientific societies and individual scientific men for gifts of scientific publications made since January 1, 1915, with the result that over twelve tons of such scientific publications were received and have been safely sent to Russia and distributed there among the major Russian universities and scientific associations. A host of grateful acknowledgments from Russian scientific organizations and men has been received.

The status and work of various other committees established to plan and undertake research on various problems will be referred to later in this report in connection with reference to the activities of the council's various divisions.

PUBLICATIONS

The council has published thirteen numbers in its bulletin series (major and technical papers usually of considerable length) during the year, and eleven in its reprint and circular series (shorter and usually more general papers). It has now in press five numbers in its bulletin series and two numbers in its reprint and circular series. The total number in the bulletin series is now thirty-one, and forty-three in the reprint and circular series. In addition the council has published a considerable number of miscellaneous papers, of which twenty-five have appeared during the past year.

Among the publications of the year have been an important group (in the bulletin series) prepared by the various special committees of the division of physics, which set out the present status of scientific knowledge in various particular fields of physical science, as magnetism, celestial mechanics, luminescence, atomic structure, acoustics, electrodynamics of moving media, etc. An important study of "Cooperation with the Federal Government in Scientific Work" has been prepared and published at the initiative of the council's division of states relations. Among other important publications of the year is a report on highway research in the United States, being the results of a census conducted by the council's advisory board on highway research in cooperation with the U. S. Bureau of Public Roads. Among the numbers in the reprint and circular series published during the year are two giving important lists of manuscript bibliographies in chemistry, chemical technology, astronomy, mathematics and physics. Also a useful list of research chemicals now manufactured in the United States. Among the miscellaneous papers published during the year is a series of "career bulletins" prepared, at the request of the council's division of educational relations, by eminent scientific men representing different fields of scientific work, setting out the opportunities offered for a scholarly career in each of these fields. These "career bulletins" are furnished in any number on specific request from university presidents and deans for distribution among selected graduate and upper class undergraduate students.

ACTIVITIES OF DIVISIONS AND DIVISIONAL COMMITTEES

Division of Foreign Relations.—The council's division of foreign relations arranged for the appointment and attendance of official representatives of the council at meetings in the summer of 1922 of the International Research Council in Brussels, International Astronomical Union at Rome, International Geodetic and Geophysical Union at Rome, International Union of Pure and Applied Chemistry at Lyons, International Union of Scientific Radio Telegraphy in Brussels and International Geological Congress at Brussels. The council is a member of the International Research Council and all of its affiliated Unions, certain of the council's divisions acting as the American sections of these Unions. The council has recently adhered to the newly established International Union of Pure and Applied Physics. The annual dues to these international scientific organizations are paid by the government through the State Department under authority of a special appropriation item in the diplomatic and consular bill.

The council has taken energetic measures to aid the Australian National Research Council to have a strong delegation of American scientific men at the Second Pan Pacific Scientific Congress which was held under its auspices in Melbourne and Sydney in August and September, 1923.

Dr. Robert A. Millikan, chairman of the division of foreign relations, has been appointed the American representative, succeeding Dr. George E. Hale, resigned, on the League of Nation's Committee on International Intellectual Cooperation.

The division's important committee on Pacific investigations has arranged with the Smithsonian Institution to have made a comprehensive study to be available for use in connection with the renewal and extension of the North Pacific Fur Seal Treaty which expires in 1926. This committee has also assisted in supporting a special expedition of the U. S. Bureau of Biological Survey to the Hawaiian Bird Islands. The Navy Department, the American Museum of Natural History and the Bishop Museum of Honolulu are also cooperating in this expedition.

Division of Federal Relations.—The council's division of federal relations has cooperated with the division of states relations in arranging to have made an important study on the cooperation of the federal government in scientific work with states, municipalities and individuals by Dr. E. W. Allen, chief, Office of Experiment Stations. This report which has been published (December, 1922) as No. 26 in the council's bulletin series discloses a total of more than five hundred separate projects in which the government is a partner with state and local agencies in cooperative scientific work. The funds involved in this cooperative work amount to at least fifty million dollars a year. This estimate does not include contribution in kind, such as land, office or laboratory quarters, special facilities, labor materials, etc., in many of the projects.

Division of States Relations.—The council's division of states relations has interested itself in having studies made by competent men of the present status of state activity in scientific research as assigned to and undertaken by the various state boards of agriculture and horticulture, geology and mining, game and fisheries, natural history, etc. Such studies have

been completed and published for California and Illinois, and other studies are planned for Massachusetts and Maryland.

The division has announced as special subject for its attention during the coming year the effect of the present tendency in the government of certain states toward the centralization of administration and particularly the effect of increased financial and commercial control in the progress of scientific matters established under state auspices.

Division of Educational Relations.—The council's division of educational relations, which has for special interest the relations of higher education and general educational methods to research and the training of research workers, has been engaged in making a survey of the research situation in the colleges and universities of the country. This work has been carried on by questionnaires, correspondence and most importantly and effectively by visits to the educational institutions by representatives of the council. Over 200 colleges and universities have been thus visited.

During the past year the division has given a special attention to the important matter of the methods in vogue—and the absence of such methods—in the colleges and universities of the country for the discovery, encouragement and special training of students of superior capacity from among whom alone the future research workers of the country are to be recruited. In connection with this study of "the problem of the gifted student" the division has had a series of special visits made to a total of about 100 institutions by men especially interested in and informed with regard to this problem, and has prepared and distributed to presidents, deans, professors and graduate and upper-class undergraduate students a series of reports and bulletins which have attracted much attention and been, apparently, gratefully received by the colleges and universities. Among these bulletins is the series of career bulletins for distribution to advanced students which are referred to elsewhere in this report under "Publications."

The division has been enabled to carry on its work of survey and stimulation by means of a special appropriation made by the General Education Board.

VERNON KELLOGG
Permanent Secretary

(To be continued)

COLLECTING PERIPATUS IN NEW ZEALAND

EVER since I have read anything about entomology and of the forms of life related to the Hexapoda, I have had a desire to see and to study under natural conditions Peripatus, one of the most primitive of the group to which the insects belong. Since this lowly arthropod does not occur in North America and is more or less circumscribed in its distribution, being confined largely to the South American, West Indian, African and Australasian regions, not many scientists in the United States have the privilege of observing the animal alive. Indeed, I feel sure that a considerable number of entomologists have never seen even a preserved one.

Therefore, it was with a good deal of satisfaction to myself that, as a participant in the South Sea expedition from the University of Iowa in the summer of 1922, I was able, in New Zealand, to do one of the things which I set out to accomplish, namely, to see and collect specimens of this unique and interesting animal as well as to bring back for our collections a goodly supply of examples. Incidentally, the privilege and opportunity thus offered represents one of the reasons for which such expeditions are organized at this institution.

The Dominion of New Zealand, comprising about 105,000 square miles, lies between 34° and 47° south latitude and 174° and 178° east longitude. Its topography is rough, and the soil, largely of volcanic origin, supports a fairly luxuriant and, in many ways, peculiar native vegetation. North Island, the scene of the hereindescribed activities, possesses a bright breezy climate, the mean annual temperature being about 55° Fahr. and the precipitation averaging a little more than 50 inches.

The native forests, many of which have been much depleted of late, consist largely of totari, tawa, remu, matai and beech; they are always green but the introduced trees all lose their leaves during the winter season (our summer).

About one and one half miles northwest of the city of Wellington and seven hundred feet above the sea there remains a remnant of one of these forests some fifty acres in area which is being maintained by the government as a reserve. In Wilton's Bush, as it is called, a considerable tract remains untouched by the forester's ax. Deep valleys, dense, hilly woods and a fine stream lend attractiveness and beauty to the place. The spiny bush lawyer (*Rubus* sp.) is plentiful and affords good beating for insects in the winter season. On the partly cleared hillsides the green, prickly gorse grows abundantly and, with its bright yellow flowers, adds a touch of color to the scene. Here, in the wooded portion of the bush within the damp and much decayed remu stumps and in the moldering down-timber of the cleared areas Peripatus abounds in some numbers.

In company with Mr. Harold Hamilton, of the Dominion Museum, a visit was made to this place on August 3 and again on August 7 for the purpose of securing specimens of this unique arthropod. Armed with sharp, heavy metal instruments the moist, de-

cayed wood of dozens of remu stumps and logs was exposed in the all-absorbing search.

Occasionally a specimen would be found under a log which rested well down in the earth but by far the largest proportion of the more than one hundred specimens taken was discovered in decayed wood. In the last log that I examined—a small one at that—six of these velvety-black, slug-like creatures were exposed. Specimens of both sexes and all sizes are included in the lot secured on the above dates.

Mention need not be made here of the structural characteristics of Peripatus since all this and much more has been so admirably done by Hutton, Moseley, Sedgwick and others. However, I should like to say a word concerning my own observations on its activities.

As is well known, Peripatus is nocturnal and shuns the light at all times. As soon as an individual is exposed it moves unerringly though slowly and deliberately toward some crevice or burrow or other hiding place. When irritated, as for example when it is picked up suddenly by the tweezers or squeezed lightly between the fingers, it ejects with some force and to a distance of from four to six inches the contents of the slime glands through the oral papillae. While the force is supplied largely by the sudden contraction of the muscular body wall, the direction and dispersal of the slime threads seems to be effected chiefly by the rapid side-to-side movements of the head and anterior part of the body.

After leaving the oral papillae the clear fluid hardens into a series of viscous strands bearing, at fairly regular intervals, minute droplets. Although harmless it is very sticky coming away easily from the animal itself but adhering tenaciously to other objects including one's fingers. I can not agree with Hutton's statement (*Ann. Mag. Nat. Hist.*, XVIII, 362, 1876) that "This viscid fluid is for offensive and not defensive purposes," for in my experience, it was certainly used in a defensive capacity. And I do not doubt that a spray of this fluid would, to say the least, prove very disconcerting to any enemy such as spiders or predaceous beetles, both of which live in the same situations as Peripatus. In 95 per cent. alcohol the slime collects in the form of a flocculent mass.

Specimens are most satisfactorily killed by immersing in water to which a little 95 per cent. alcohol has been added. They succumb, through suffocation, in a surprisingly short time—four or five minutes—and are best preserved in spirits of the above strength.

The now generally prevalent conviction regarding the affinities of Peripatus was well summed up by Hutton years ago (*l. c.*, 368) when he said in substance that it does not form a direct link between the other tracheate arthropods and the annelids, but is best regarded as an offshoot from the base of the arthropodan stem.

DAYTON STONER
THE STATE UNIVERSITY OF IOWA

THE SECOND PAN-PACIFIC SCIENCE CONGRESS

THE Pan-Pacific Science Congresses have been held on the initiative of the Pan-Pacific Union with headquarters at Honolulu, where the first of such gatherings met August 2–20, 1920. The second has been held August 13 to September 3 of the present year under the special auspices of the Australian National Research Council, with its president, Sir David Orme Masson, president of the congress. A considerable number of "assisted passages" were offered to distinguished scientists in over-seas Pacific countries, and to this inducement were added free railway transportation and housing while in Australia.

In all, between eighty and ninety over-seas delegates attended, the list including Col. Sir Gerald Lenox-Conyngham and Dr. Haddon among others from the British Isles; Drs. Brock, McMurrich and Fraser from Canada; Dr. Sakurai, and Professors Omori, Yamasaki and Oshima in a strong delegation from Japan; Drs. van Romburgh, van Leeuwen, Brouwer, Braak and others from the Netherlands. From New Zealand came Professors Kirk, Marshall, Speight and Benson and Mr. Morgan.

The delegation from the United States was exceptionally large—sixteen from the States, six from the Hawaiian and four from the Philippine Islands. The States delegation was as follows: In agriculture, Babcock, Mead and Stakman; in physics, Benfield, Moore and Wait; in geology, Brooks, Hobbs, Hovey and Vaughan; in geography, Fenneman and Huntington; in zoology, Pillsbry and Ritter; and in hygiene, Sayers. Professor Gregory, the president of the first congress, was in the Hawaiian delegation, and Merrill and Selga in that from the Philippines.

The program was one of exceptional interest to students of Pacific problems. In addition to a number of general sessions to hear important papers of general interest, there were special sections in: I, agriculture; II, anthropology; III, botany; IV, entomology; V, forestry, VI, geodesy and geophysics; VII, geography and oceanography; VIII, geology; IX, hygiene; X, veterinary science, and XI, zoology.

The geologists assembled in unusual strength both from Australia and from overseas, and their programs were contributed to by a considerable number of authorities in special fields. The topics included: The structure of the Pacific region; Post-Mesozoic volcanic activity within it; the distribution of ores, oil and water resources; the correlation of the Tertiary

formations; the Permo-Carboniferous and Permian problem, geological surveys, and a symposium on the origin of coral reefs and atolls. In connection with this symposium Professor Sir Edgeworth David, who presided at the Sydney sessions and who is widely and lovingly known as the grand man of Australia, presented a most important report on the Royal Society's borings at Funafuti. The half-cores from this boring and other illustrative exhibits were displayed.

A dramatic event of the meeting was the arrival at Sydney on the eve of the meeting in that city of the new United States scout cruiser "Milwaukee," equipped with the sonic depth finder and prepared to exhibit a new set of soundings taken on its voyage across the Pacific from Puget Sound. Her commander, Captain W. C. Asserson, came as a delegate to the congress from the United States Navy Department and presented a paper in joint session on the principle of construction and use of the depth finder. On his invitation the Australian Navy Department sent an officer from Melbourne to attend a demonstration, and on like invitation the Ministry of Trade and Customs sent for the same purpose Captain John K. Davis, the commissioner of navigation and widely known as the master of vessels of Antarctic explorers. Each day during the visit of the cruiser parties from the congress were taken on board for demonstrations. A hearty vote of thanks was taken to be presented to the United States Navy Department through Captain Asserson. The friendly visit to Sydney of this modern warship, the first since that of the great fleet under Admiral Sperry, aroused much popular enthusiasm and approval.

Many resolutions of importance were passed. These related to the destruction of insect pests; to measures to prevent the early extinction of the native Pacific races; for cooperation in botanical surveys; for systematic treatment of the tectonic features; for aeroplane and other surveys of coral reef areas, and especially that of the Great Barrier Reef of Australia; for an international bureau of animal health; and for the conservation of the marine mammals of the Pacific.

It was further recommended that there be formed a permanent organization of the scientific institutions and individuals engaged in research on the scientific problems of the Pacific region, and the president of the third congress was requested to take the initial steps for this organization.

Both during and after the congress excursions of great interest were participated in by large groups of delegates, the longest being those to the Broken Hill mining district and to the Great Barrier Reef of Australia, the latter in a government vessel for a period of three weeks at the conclusion of the sessions.

Upon cordial invitation submitted by the Japanese delegation it was decided to hold the third Pan-Pacific Science Congress in Japan in 1926. The invitation had already been accepted by the Council of the congress, but before coming before the general session for action news was received of the terrible devastation and general destruction of Tokyo and Yokohama wrought by earthquake and following seismic seawave. In this difficult situation the Japanese delegation decided to stand by its invitation, and the invitation was accepted with full understanding of the situation.

The hospitality of the Australians was most generous and cordial, and the over-seas delegates were warm in their praise of their hosts for their skilful management. As one who has attended many congresses of an international character, the undersigned feels warranted in saying that such generous hospitality has been seldom equaled. The sentiment found frequent expression that nothing could do so much to promote international good-will and so make for the maintenance of peace in the Pacific as meetings of this character. The United States Navy came in for much praise for the ways in which it has contributed to scientific research.

WILLIAM HERBERT HOBBS

SUOA

SCIENTIFIC EVENTS

DELONZA TATE WILSON

THE death of Professor Delonza Tate Wilson, of the department of astronomy of Case School of Applied Science, Cleveland, Ohio, occurred on Friday, October 12, at the Kendall House Sanitarium, Washington, D. C., after a long illness.

A member of the faculty at Case for twenty years, Dr. Wilson did a great deal in building up the department of astronomy as well as in teaching mathematics. When the Warner and Swasey Observatory, dedicated in October 1920, was being planned, he assisted in the designing of the building and its equipment. He made a special study of ballistics and during the war conducted classes in that subject, cooperating with the Government Naval College and the Coast Artillery Division. The special astronomical research to which he gave his attention was the computation of tables of the perturbations of a group of asteroids, printed at Upsala in 1912.

Dr. Wilson was born in Clinton, N. C., soon after the close of the Civil War. He was graduated from the University of North Carolina in 1887, received his M. A. from Vanderbilt University in 1896, and his Ph.D. from the University of Chicago in 1905. He spent a number of years as a computer in the United States Observatory at Washington, then taught for two years, 1901–1903, at the University of Cincinnati,

before coming to Case in 1903 as an assistant professor. He was made associate professor in 1911. Illness compelled him to give up his work at the end of the college year in 1921.

A brother and a sister survive him; he was unmarried. Interment was at Clinton, N. C. Dr. Wilson was a very congenial, likable man, and a splendid teacher. He was a member of Beta Theta Pi.

KARL O. THOMPSON
Secretary of the Faculty

THE FOREST RESERVES OF THE STATE OF NEW YORK

REPEAL of the constitutional provision prohibiting the cutting of timber in the forest reserves of New York was advocated in a resolution passed by the executive board of the American Engineering Council of the Federated American Engineering Societies at its closing session in Rochester, N. Y., on October 13. The time has come, it was asserted, when a great volume of ripened timber should be cut both in the interest of conservation and of industry. This resolution, recommending that all the states pursue a modern forest policy, said:

> The State of New York owns something over a million acres of standing timber in the Adirondacks and Catskills. A provision in the State Constitution prohibits the cutting of this timber. Trees, like other field crops, ripen and decay, and not cut, become valueless and retard the growth of healthy young trees. The authorities are powerless to prevent this large loss in a densely populated section using forest products extensively and paying heavy transportation charges on far away cuttings. The profession of forestry is being rapidly developed and modern forest methods are well known in the United States. Trees can be cut, new plantings made, fire losses reduced, and the life and producing power of the forests continued almost indefinitely if timber tracts are intelligently treated. Further, they can be made self-supporting, and made to yield increasing revenue if rationally regarded, and this without impairing their esthetic or recreational value.
>
> The demand for forest products is increasing rapidly in the face of diminishing supplies, and costs are advancing.
>
> It, therefore, seems an opportune time for the people of New York State and other states possessing timber reserves to adopt a modern forest policy, which will permit the care of their forests on modern scientific lines. The Federated American Engineering Societies feel that the people of New York State will gain by removing the Constitutional restrictions on timber reserves, this question coming before the voters at a referendum on November 6, so that effective protective legislation can be passed.
>
> The state, it is believed, can safely put its forest problems in the keeping of trained foresters whose reputation depends on so maintaining the forests that they will become an increasingly valuable asset, rather than a serious burden, as they are to-day.

THE ALDRED LECTURES OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

THE first of the Aldred Lectures at the Massachusetts Institute of Technology, established by Mr. J. E. Aldred, who carried to a successful conclusion the immense hydro-electric development at Shawinigan Falls on the St. Maurice River in Canada, is announced for the afternoon of November 9. Mr. Gerard Swope, a technology graduate of the class of 1895, president of the General Electric Company, will deliver the first of the lectures. Other eminent industrialists and engineers are to complete the program for the first year which will consist of twelve lectures.

President Stratton has appointed Professor D. C. Jackson, head of the department of electrical engineering and Professor Vannevar Bush, in charge of graduate work in electrical engineering, to cooperate with Mr. Aldred in establishing the lectures. A number of prominent men have been invited to give papers in a schedule that is being arranged to cover the next five years. The lecturers, representing all branches of industry, come from all parts of this country, and some from Canada. The twelve lectures which will be given this year, will be open to the faculty, seniors and graduate students of the institute and to a limited number of outsiders, and will probably be published for general distribution next spring.

Mr. Aldred believes that "it will be a contribution to the engineer's training if the proposed lectures give the student an opportunity of coming in contact with men who have made an outstanding success in their various lines of undertaking, and who best illustrate the value of practical experience, coupled with technical knowledge. This contribution is put forward with the hope that it will assist the graduate student going out to take up his life's work by his having in mind at the outset of his career that the work he is to do must be a practical contribution to the problems of the day."

THE NEW ENGLAND INTERCOLLEGIATE GEOLOGICAL EXCURSION

THE nineteenth annual New England Intercollegiate Geological Excursion was held in the vicinty of Arlington and Beverly, Massachusetts, October 12 and 13, under the leadership of Professor Alfred C. Lane, of Tufts College; Professor Charles Palache, of Harvard University, and Mr. E. E. Fairbanks. The universities and colleges represented were as follows: Harvard (15), Massachusetts Institute of Technology (9), Tufts College (6), Brown University (4), Wes-

leyan (2), Colby (1), Massachusetts Agricultural College (1), Teachers School of Science (1), Union College (1), University of Witwatersrand, South Africa (1). Ten institutions were represented by forty-one persons.

On October 12 the group studied the gabbro-diorite series in the vicinity of Arlington and Medford. Pink granites and pegmatites were found cutting and permeating the diorites and the discussion centered about the age of these intrusions. Were they contemporaneous differentiates of the gabbro-diorite batholith or did they represent a later petrogenic cycle? On October 13 the rocks along the coast between West Manchester and Beverly were studied, and a number of the party visited Salem Neck. The complex of alkaline dikes (sölvsbergite, tinguaite, camptonite) attracted the most attention.

W. G. FOYE,
Secretary

BOTANY AT CINCINNATI

BECAUSE of its general interest to botanists in their individual and organization plans for the Cincinnati meeting of the American Association for the Advancement of Science it seems desirable to announce in advance the program which has been arranged for the joint meeting of Section G with other botanical organizations. It has been planned that this program be given on the afternoon of the first full day of the session, Friday, December 27. In addition to the address of the retiring vice-president of Section G, Dr. F. E. Lloyd, who will speak on "The fluorescent colors of plants: their mode of occurrence and meaning," three invitation papers will be presented,—

The relation of environment to disease in plants: DR. L. R. JONES.

Recent advances in cytology: DR. L. W. SHARP.

Cell activity and H-ion concentration—some problems in metabolism and absorption: DR. B. M. DUGGAR.

ROBERT B. WYLIE
Secretary of Section G

SCIENTIFIC NOTES AND NEWS

CHARLES PROTEUS STEINMETZ, consulting engineer of the General Electric Company and professor of electrophysics in Union College, died at his home at Schenectady on October 26, at the age of fifty-eight years.

ACCORDING to a cablegram from Stockholm, the Nobel Prize for medicine for 1923 has been awarded to Dr. F. G. Banting and Dr. J. J. R. MacLeod, of Toronto, for their discovery of insulin.

AT a special convocation on October 8, Syracuse University granted the honorary degree of Doctor of Science to distinguished delegates from foreign countries attending the World's Dairy Congress at Syracuse. Recipients of this honor were: Professor Orla-Jensen, of Denmark; Professor Haakon Isaachsen, of Norway; Dr. Robert Burri, of Switzerland; Gerald Leighton, M.D., of Scotland; Robert Stenhouse-Williams, M.D., D.P.H., of England; Sir Arnold Theiler, D.V.M., D.Sc., of South Africa; Charles Porcher, of France; Professor Masayoshi Sato, of Japan, and Charles Hastings, M.D., LL.D., of Canada. The degree of LL.D. was bestowed upon Professor Van Norman, dean of the University Farm School, University of California and president of the World's Dairy Congress, and upon Cesare Longobardi, LL.D., chief of the Statistical Bureau of the International Institute of Agriculture, Italy.

AT the inauguration on October 18 of Dr. George Johnstone Trueman as president of Mount Allison University, Sackville, N. B., Canada, the degree of doctor of laws was conferred on Dean F. D. Adams, professor of geology, McGill University, and on Professor R. C. Archibald, professor of mathematics, Brown University.

THE Academy of Medicine of Mexico, has elected as honorary members Dr. W. J. Mayo, of Rochester, Minn., and Dr. A. J. Ochsner, of Chicago.

THE Chalmers gold medal for the best work on tropical medicine by investigators under the age of forty-five years has been awarded to Dr. Roubaud, general secretary of the Société de Pathologie exotique of Paris.

DR. B. T. BALDWIN has been elected president of the University of Iowa Research Club which consists of seventy head and research professors from the various colleges and departments in the state university.

DR. R. B. SOSMAN, of the Geophysical Laboratory, Washington, D. C., has been appointed by the National Research Council as American member on the permanent committee for the standardization of physico-chemical symbols of the International Union of Pure and Applied Chemistry. The other members of the committee are: Professor Ernst Cohen, University of Utrecht, chairman; Professor Alexander Findlay, University of Aberdeen, and Professor Charles Marie, Sorbonne.

SIR ARCHIBALD GARROD, M.D., F.R.S., regius professor of medicine in the University of Oxford, has been appointed a member of the Medical Research Council in succession to Professor F. Gowland Hopkins, F.R.S., who retires by rotation. The appointment of Sir Archibald Garrod was made by the committee of the Privy Council for medical research,

after consultation with the Medical Research Council and with the president of the Royal Society.

RAYMOND B. LADOO, M.E., has resigned his position at the Bureau of Mines, Washington, D. C., to become general manager of the Southern Minerals Corp., Cleveland, Tenn.

DR. GEORGE H. PETHYBRIDGE, formerly mycologist of the Department of Agriculture and Technical Instruction for Ireland, has resigned to accept the position of mycologist for the Ministry of Agriculture and Fisheries of England. Dr. Pethybridge is working at the Pathological Laboratory, Milton Road, Harpenden, Herts, England. The position of mycologist for the Department of Agriculture in Dublin has been abolished. Dr. P. A. Murphy, formerly assistant to Dr. Pethybridge has been placed in charge of the research work in plant pathology while the other assistant, Mr. H. A. Lafferty, has been appointed head of the Irish Department Seed Testing Station.

MR. LAWRENCE OGILVIE, graduate of Aberdeen University, who has recently completed his graduate work in science at Cambridge, has been appointed plant pathologist to the Bermuda Department of Agriculture. His address is Paget East, Bermuda.

IT is reported from Vienna that Professor Sigmund Freud, founder of psychoanalysis, underwent, on October 21, a serious operation in a Vienna hospital. His condition is said to be favorable, but Dr. Freud is now more than seventy years of age.

DR. E. PERRONCITO, professor of pathology at Turin, retires from his chair this year, having reached the age limit. He is to preside at the postponed international congress on comparative pathology that was to have convened in Italy this year.

THE *Journal* of the American Medical Association reports that Dr. Clemens F. Pirquet, for two weeks head of the department of pediatrics at the University of Minnesota, has resigned and will return at once to Vienna, Austria. The principal reason for leaving given in a statement by Dr. Pirquet was that the research work in which he is engaged requires a large amount of clinical material and an organized hospital and that the comprehensive plans for a hosiptal provided by the Eustis bequest would require considerable time for completion. Dr. Pirquet also expressed a feeling of homesickness for his Vienna hospital and of inability to adapt himself to his new conditions; a third reason was the continued illness of Mrs. Pirquet since her arrival in the United States.

T. E. SWIGART, superintendent of the Petroleum Experiment Station of the Bureau of Mines, at Bartlesville, Oklahoma, has been granted a furlough of some months to respond to a call to India by the Attock Oil Company, Ltd., to assist in solving operating troubles of the company's holdings. During Mr. Swigart's absence, M. J. Kirwan, petroleum engineer, will serve as acting superintendent of the Bartlesville Station.

ZAI-ZIANG ZEE, head of the department of chemistry of the College of Yale in China, is taking a course in chemistry this year in the Yale Graduate School with a view to securing his doctor's degree.

DR. COLIN G. FINK, of the division of electrochemistry of Columbia University, addressed the chemists of the Dow Chemical Company, Midland, Mich., on "Metallurgical Research" at their October meeting.

PROFESSOR WILLIAM SNOW MILLER, of the department of anatomy, of the University of Wisconsin, repeated at the September session of the School of Tuberculosis held at the United States Veterans' Hospital at New Haven, Connecticut, the series of lectures given at the March session on "The anatomy of the lung and its relation to certain phases of tuberculosis."

PROFESSOR HANS DRIESCH, of the University of Leipzig, gave a lecture on "Mind and Body" in the medical amphitheater of Johns Hopkins Hospital on October 16.

AN inaugural lecture on the present tendencies and future compass of physiological science was given by Professor A. H. Hill, F.R.S., at University College, London, on October 16. The chairman was Professor E. H. Starling, F.R.S., Foulerton professor of physiology, and Professor Hill's predecessor in the chair he now holds.

THE centenary of the birth of Henri Fabre, the distinguished French naturalist, will be celebrated by the erection of a monument at Sérignan. A committee has been formed for this purpose under the patronage of the president of the French Republic. Subscriptions may be sent to M. Henry de la Pailloune, mayor of Sérignan (Van Cleuse).

DR. HENRY J. BARNES, professor of hygiene at the Tufts College Medical School for many years, has died in Northboro, Mass., at the age of seventy-five years.

PROFESSOR A. D. PITCHER, head of the department of mathematics in Adelbert College, Western Reserve University, died on October 5, at the age of forty-three years.

PROFESSOR ERNEST SALKOWSKI, director of the chemical laboratory of the Berlin Charité Hospital, known for his work on physiological chemistry, has died at the age of seventy-nine years.

JULES VIOL, professor of physics at the Conservatoire des Arts et Métiers, died on September 12, aged eighty-four years.

THE deaths are announced of Dr. P. Friedländer, professor of organic chemistry in the Technical School at Darmstadt, and of Alexander Ellinger, professor of pharmacology at Frankfort.

DR. W. V. BINGHAM, of Carnegie Institute of Technology, Pittsburgh, has been elected editor and Dr. L. L. Thurstone, of Washington, D. C., associate editor of the *Journal of Personnel Research*. Dr. C. S. Yoakum continues as managing editor of the Journal which is now entering on its second volume. The other members of the editorial board are Wesley C. Mitchell, Alice Hamilton, Frankwood E. Williams, R. W. Husband, Matthew Woll, Leonard Outhwaite, Joseph K. Willets, Lewis M. Terman, Alfred D. Flinn and Mary Van Kleeck. This journal is the official organ of the Personnel Research Federation whose purpose is the furtherance of research activities pertaining to personnel in industry, commerce, education and government.

THE American Fisheries Society held its fifty-third annual meeting in St. Louis, at the Hotel Statler, on the 17, 18 and 19 of September. President Glen C. Leach, of the Bureau of Fisheries, Washington, presided. There were eighteen papers presented by members of the society and a symposium on "Food and feeding of fish." Some of the best authorities on fish culture took part in this discussion. The officers for the coming year are: *President,* Dr. George C. Embody, Ithaca, New York; *Vice-president,* Eben W. Cobb, St. Paul, Minnesota; *Executive Secretary,* John W. Titcomb, Hartford, Connecticut; *Recording Secretary,* Floyd Young, Chicago, Illinois; *Treasurer,* T. E. B. Pope, Milwaukee, Wisconsin.

AT its 266th meeting, held on October 9, the Elisha Mitchell Scientific Society celebrated its fortieth anniversary. Dr. F. P. Venable, the first president of the society, and the only surviving member of its founders, reviewed the forty years of its history in a paper entitled *Historical Sketch of the Elisha Mitchell Scientific Society.* Dr. W. C. George presented a paper entitled *Some Peculiar Amoeboid Cells in Perophora.* Fifteen men were elected to active membership and sixty-four to associate membership.

PROFESSOR E. PERRONCITO, of Turin, president of the International Congress on Comparative Pathology, announces its further postponement until 1924. It had been finally scheduled to meet at Rome on October 7, but the committee on organization was unable to make full preparation for it.

THE fifth commission of the League of Nations has adopted a resolution presented by M. Jacques Bardoux (France) recommending the transformation of the secretaryship of the commission on intellectual cooperation into an international bureau for the collection and distribution of information of interest to universities.

A PERMANENT organization to be known as the National Bollweevil Control Association was created on October 26, marking the end of the bollweevil menace conference at New Orleans. The association will be perfected by an executive committee of twenty-two members, representing the varied interests of the cotton industry. Claude G. Rives, Jr., of New Orleans, president of the Louisiana Bankers' Association, chairman of the conference, named part of this committee, which will meet on November 17 in New Orleans, when the full personnel will have been named. Those already named on the committee include: from the Department of Agriculture, W. D. Hunter and B. R. Coad, who is in charge of the Federal bollweevil experimental station at Tallulah, La.; from the Association of Southern Agricultural Workers, W. E. Hinds, of the Alabama Polytechnic Institute, and D. C. Hull.

A MEETING of the International Eugenics Commission was held in Lund, September 1–3, 1923. The following members were present: Major Leonard Darwin, Doctors Jon Alfred Mjøen, H. H. Laughlin, George P. Frets, Herman Lundborg, W. Johannsen, S. Hansen, M. A. Van Herwerden and H. Nilsson-Ehle. A definite invitation to have the next International Congress of Eugenics meet in Prague was received from Professor Rüzička. The exact date is undetermined. Dr. August Forel, of Switzerland, was added to the commission.

THE Birth Rate Congress held its final meeting at Marseilles on September 30 under the presidency of M. Paul Strauss, the minister of hygiene. Telegrams were addressed by the Congress to M. Millerand, president of the Republic, and M. Poincaré, urging them to support the reforms necessary to remedy the evil of depopulation. A letter from M. Maurice Barrès was read, in which amendments to the laws of inheritance, which were declared to be one source of depopulation, were asked for.

THE fifteenth session of the International Institute of Statistics was held at Brussels during the first week in October under the presidency of M. Delatour, of the Institute of France.

THE Michael Reese Hospital, Chicago, announces the establishment of two fellowships of $30,000 each and two research funds of $50,000 each; the first by Mr. and Mrs. John Hertz, the second by the trusteess of the Joseph G. Snydacker estate, the third by the

trustees of the Gusta Morris Rothschild estate and the fourth by Albert Kuppenheimer.

PROFESSOR BROUWER, of Delft, Holland, has sent a set of invertebrate fossils of Permian age to the geological museum of the University of Michigan. Professor Brouwer, who was the exchange professor with Professor W. H. Hobbs of the department of geology last year, made the collection in the Dutch East Indies.

THE legacy of one million francs left by the late Prince Albert of Monaco to the French Academy of Medicine, is to be used to found a prize for doctors for certain kinds of medical service or discoveries. It is intended that the value of the prize shall be 120,000 francs and that it shall be awarded once every two years. The council of the academy has not yet decided whether the prize is to be international.

A SOCIETY of Bologna has founded an endowment of 6,000 francs yearly for an Italian student of physics and chemistry who wishes to do research work in the Curie Laboratory, Paris. The fellowship is endowed for ten years.

A PARTY from the public health service in Mexico has been visiting the Institute for Tropical Medicine at Hamburg, to aid in establishing closer relations between the institute and the state of Mexico.

THE British Department of Scientific and Industrial Research announces that a license has been issued by the Board of Trade to the Research Association of British Flour Millers under the conditions laid down in the Government scheme for the encouragement of industrial research.

ACCORDING to figures of the United States Forest Service compiled for the fiscal year ended June 30, revenues from sales of timber and livestock grazing permits and use of forest lands for summer homes and hotels brought in $5,335,818. This amount is about $1,000,000 larger than the average annual receipts of the preceding five years. Of the receipts, $1,371,551 will be paid over to states containing national forests for use as school and road funds of the counties in which the national forests are located. An additional $528,569 will be used in building roads and trails in the forests. Twenty-seven states and Alaska shared in the distribution, California receiving $445,675.

THE London School of Tropical Medicine has arranged to send an expedition to Samoa to study the prevention of elephantiasis and filariasis, diseases which affect 85 per cent. of the inhabitants of the Samoan group. The expedition will have its headquarters at Apia and will be away for two years; it will work in cooperation with the New Zealand government, which is responsible for the administration of Samoa. The expedition, which will leave England on November 15, will be under the leadership of Dr. Patrick Buxton, who did valuable work on entomology in Mesopotamia during the war, and has recently been entomologist to the Palestine Government at Jerusalem.

UNIVERSITY AND EDUCATIONAL NOTES

MR. EDWARD and MISS ADA DOERNBECHER, of Portland, Oregon, have recently donated $200,000 to the University of Oregon Medical School to be used in the construction of the Doernbecher Memorial Children's Hospital on the campus of the medical school.

CHARLES STILLMAN, of New York City, has given to Yale University the sum of $100,000 to establish the James Raymond Goodrich Scholarship Fund to provide each year ten scholarships of $500 each, to be awarded to students of exceptional character and ability.

FORMAL dedication of the new pathological laboratory building of the Johns Hopkins Medical School was held on November 1. Addresses were made by Dr. Frank J. Goodnow, president of the university; Dr. William G. MacCallum, Baxley professor of pathology, and Dr. William H. Welch, director of the Johns Hopkins School of Hygiene and Public Health.

FRANK DICKSON, for the past three years instructor in plant pathology in Cornell University, has been appointed assistant professor in plant pathology in the University of British Columbia, Vancouver, B. C.

DR. M. A. CHRYSLER has resigned his position as head of the department of biology of the University of Maine to accept a position in the department of botany of Rutgers College.

DR. W. A. WHITESELL, of the Johns Hopkins University, has accepted a position as associate professor of chemistry at the University of South Carolina.

DR. FRANKLIN C. MCLEAN, for several years director of the Peking (China) Union Medical College, has been appointed professor of medicine at the University of Chicago Medical School.

DISCUSSION AND CORRESPONDENCE

THE FIRE IN CALIFORNIA

IT appears that the accounts of the great conflagration of September seventeenth in Berkeley, which appeared in the public press in various parts of the world, were inaccurate in various degrees, and it seems advisable that a correct statement of the salient facts be published.

A grass, brush and forest fire in the hills northeasterly from Berkeley, fanned by an extremely strong northeast wind, got beyond control and between the hours of 2:45 p. m., and 5:15 p. m., spread over

an area of about sixty "blocks" immediately adjoining the University campus on the north. The spread of the fire was very rapid; in many cases ten minutes sufficed to carry the flames from one street to the next parallel street. In most cases the occupants of the residences did not have time to remove their possessions to appreciable extent. In the burned area lived about 60 University professors, associate professors and assistant professors, and about 50 instructors, assistants and associates; about 30 secretaries, library assistants, clerks and stenographers in the employ of the University; and 1,042 University students. The number of fraternity and sorority houses consumed was about 12.

Not only did members of the University community suffer serious loss and inconvenience as to residences and furnishings, but the libraries of those who were burned out, and other collections intimately related to their university duties, were consumed. In a few cases professors' manuscripts embodying the results of several years of research were lost. The students who were burned out did not devote their efforts in general to saving their own equipment of clothing and books, but unselfishly joined with the informal organizations of students engaged in getting the occupants of houses into safety zones, in removing limited quantities of residence contents to the University campus and elsewhere, and to efforts looking toward the staying of the flames.

Relief measures were promptly organized, and assistance has been rendered, though on a relatively small scale, to those in most serious need. Many organizations in Berkeley and in the San Francisco Bay region, operating chiefly through the Berkeley Chapter of the American Red Cross, have gone far to meet these needs. The unofficial relief centers and countless individuals have given assistance more directly upon a commendable scale. The spirit of those who suffered has been admirable, so far as I am aware in absolutely every case. All concerned have been averse to the making of a public appeal for help. Both the Red Cross and the University Committee engaged in meeting the situation have found their chief difficulty, not in the securing of relief funds, but in obtaining from those who suffered loss the information necessary to the carrying out of adequate and wise relief policies.

No University buildings were consumed or seriously damaged, and the University's minor losses are summed up in a few thousands of dollars. More than half of the students affected lost their lecture notebooks, and in other ways their studies were interfered with for a few days. Many of the professors who were burned out on Monday afternoon, September seventeenth, were in their lecture rooms early Tuesday morning; and the same spirit of determination to carry on has not diminished in the intervening three weeks.

Messages of sympathy for those members of the University community who suffered have been numerous, and have come from great distances—from the University of Louvain on the one hand and from the University of Peking on the other. In behalf of the University of California I desire to thank the senders of the messages and all those whom the messages represented. As an instance of sympathy and assistance extended, I desire to speak especially of the benefit concert given in the Greek Theater of the University by the San Francisco Symphony Orchestra under the leadership of Mr. Alfred Hertz. The services of the orchestra and of all who helped on that occasion were provided gratis by those who rendered them.

W. W. CAMPBELL
UNIVERSITY OF CALIFORNIA

APPLES, WORMS, PHILOSOPHERS AND GOATS

CHARLES DARWIN once showed the intimate connection existing in nature between cats, mice, bumble bees and clover. The classical presentation of this great naturalist must be at once my inspiration and excuse for offering some further biological reflections on the relationships of apples, worms, philosophers and goats. It will be necessary, in this ecological excursion, to go somewhat farther back than Darwin did, and begin at the beginning, in the same manner as the book of Genesis. We may have to invoke some form of metempsychosis or paronomasia, but in these days of advanced psychical research this should offer no difficulty.

It is necessary, in the first place, to show that the apple into which Adam sank his teeth was wormy, and, in the second place, that he nipped the worm's tail in this his maiden effort at consuming a specimen of *Pyrus malus*. It may be objected that, in the Garden of Eden, in which everything was perfect, there were no worms in the apples. I think that this objection may be easily overthrown, and I take as an authority no less a person than Mr. William Jennings Bryan. It is definitely known, according to Mr. Bryan, that the Lord created all plants and all other animals before he created man. Apple worms must, therefore, have been created before man. Since all transmutation of species by evolution must be excluded, these worms must have had to eat something to keep them alive, and they must have eaten apples and nothing else. In the perfect balance of things that must have obtained in the Garden of Eden, there was an apple for every worm, and, we may say also, a worm for every apple. By the use of pure Aristotelian logic, we have arrived at the conclusion that the apple which Adam ate was wormy. If any one

doubt this, I can only quote Oliver Wendell Holmes's old dictum that "Logic is logic."

We have now to show that Adam nipped the worm's tail when he bit into the apple. This is a relatively simple process, involving only a slight basis of observation of animal behavior and a little pure logic. Before Adam ate the apple, he was simple-minded, even as the rabbits and squirrels which played in the Garden, and could not have known about the habits of apple worms. Any one who has watched a horse or a cow or a pig or a baby or any other frugivorous animal eat an apple will readily appreciate the peril of the worm. Bearing in mind Adam's social training and table manners in his state of pure innocence, I need not labor the argument further to show that he nipped the worm's tail. Again, logic is logic.

Thirdly, we may point out that the worm, suffering mayhem in the first degree, was not long unavenged. Before this, it was incumbent upon him to dodge preying teeth and make his escape from danger. But with the acquisition of wisdom on Adam's part, he learned to know which apples were wormy and which were not, since the perfect balance in the Garden was now upset and he was driven out of it, and the responsibility now shifted from the worm to man. Whereas, in the Garden it was "Caveat vermis," we now say "Caveat emptor" and other things of this kind. All this has worked for the peace of mind of the worm, but for man, the case is different. It might be a more tranquil world if the worm still had to worry. Spraying apple trees is only a belated and partially effectual attempt to shift the responsibility back to the worm. But neither this nor the proverbial early bird relieves the boarding house guest from all responsibility with regard to prunes. The worm still has the better of the argument.

The general proposition of the recognition of worms of whatever sort in apples of whatever kind requires considerable philosophical insight, and there have been men in the world ever since the time of Adam, or soon after, who have had this facility in systematic zoology. They have not all been entomologists, for apple worms are not really worms, you know, but all of them have been philosophers, each after his own system. Among the other evils which Adam's gastronomic indiscretion brought into the world must be reckoned the philosophers, for their persistent exposure of human sham—really nothing more than a euphemism for worms in apples—has contributed much to the discomfort of many estimable people. All this must be reckoned as evil. The philosopher is so constituted that worms in apples disturb him, while those happier beings of more bovine intelligence, if they were capable of getting the philosopher's point of view, might think him foolish to worry about worms at all. And it is in connection with worms in apples that the philosopher's metempsychosis occurs. Having once recognized the worms in the apples, and having pointed them out, he is quite likely to find that the responsibility in the matter has shifted from the worm to him. In other words, he has become the goat, and the worm has no further cause for worry.

Philosophers have been associated in the popular mind with the academia since the days of Plato, although Diogenes contented himself with a lantern and a tub, preferring the security of these to the uncertainties of academic tenure. It is doubtful whether the density of philosophers per million of population is any greater in the academia than it is in the general public at large, but they seem to be more prominent in the academia, and their prominence comes from their facility in detecting worms in the apples. Partaking of the double nature of philosopher and goat, the philosopher is particularly likely to become obnoxious in such an environment. He may innocently nibble at a gorgeous verbal bouquet intended for some strenuous defender of the system, because, to him, it bears a striking resemblance to spinach or some other herbage of this sort, and thereby incur the wrath of the powers that be. Or he may nip off the blossoms of a spray of lilies of the valley intended for some colleague, and expose the hemlock that has been concealed in it. This is a reprehensible trait, and the offence is generally punished as it deserves to be.

The worm is said to turn, and to manifest other evidences of an evil temper at times, particularly when trodden upon. But the most important characteristic of the goat which has been recorded in Holy Writ is that he shall have the sins of the tribe hung upon him and be driven out. This speaks well for the goat's gentleness of temper and general simple-mindedness, despite his facility as a philosopher in recognizing worms. If the artist's conception of the matter is correct, the painting by Holman Hunt shows a resemblance of the goat's decorations just before he is to be driven out to the academic robes and gayly colored hood of the philosopher in the academic procession. Somewhere it is stated also that the rocks are a refuge for goats.

The Greek attitude towards goats was more kindly, perhaps because of the lenient attitude of the Greeks towards philosophers. And I believe that it was a Greek who noticed that goats dance in the sun. But even in Greece, neither goats nor philosophers wholly escaped being offered up as a sacrifice. And if my conception of a philosopher-goat seem a fanciful one, one has only to recall the great god Pan.

At one time a distinction was drawn between academia and schola—between the institution for thought and that for mere pedagogy—but perhaps it would be invidious to insist upon this distinction at the present day. The term school is so common in

connection with our professional institutions, and generally so accurately descriptive, that no other term seems necessary. Furthermore, many so-called academies fall so far short of Plato's model that the words college and university seem all that are required to-day. Few philosophers will disagree with President Lowell's statement that America has failed to contribute its share to the world's thought.

But no one of these institutions should be without at least one philosopher apiece, for of such is the family of goats.

F. H. PIKE
COLUMBIA UNIVERSITY

PACHYOSTOSIS

THE term *Pachyostosis* to denote a benign type of osteohypertrophy, especially in aquatic animals, was first clearly discussed by O. Abel in his "Paleobiologie." It is interesting to note the animated discussion of the possible phylogenetic significance of this condition at the meeting of the German Paleontological Society at Tübingen in August of last year. The subject arose following the reading of Nopsca's paper[1] on the osteology of a Cretaceous snake. Baron Nopsca proposes the unusual term *Arrostie* for the condition of Pachyostosis, but spoils it by including in his classification such diverse pathological conditions as Osteosclerosis, Acromegaly and later some one proposed to include in it the condition known as Osteoporosis. This conception seems to me to be quite wrong, and I wish to add this word to the discussion.

It seems to me that the new term Arrostie is unnecessary and misleading. It implies a combination of conditions which does not exist. Pachyostosis, as I understand it, does not involve either infections or other pathological results, but is to be regarded as an adaptation in vertebrates to an aquatic habitat. The hypertrophy is a condition largely of the ribs and vertebrae, and while it may sometimes be due to the presence of heavy dorsal armor, yet more frequently it seems to me the thickening of the bones is an adaptation, permitting the animal to submerge more readily and to remain under the surface. Osteosclerosis is not an accompaniment of the pachyostosis in the few histological examinations of pachyostotic bones I have made. The unorganized deposition of calcium salts in callus following fracture, and in areas of intensely rapid growth stimulated by infection constitute a condition of osteosclerosis far removed from any interpretation of pachyostosis. I have recently noted in a Pleistocene tiger a condition in the pelvis resembling in its great and uniform hypertrophy of both rami the heaviness seen in Pachyostosis. This was due, clearly, to the intense infection the results of which are evident in the sacrum, where the most posterior sacral element is greatly exaggerated in size.

It would seem unwise to include under the same classification such diverse hypertrophies as acromegaly, osteosclerosis and the absorptive process of osteoporosis. In fact, osteoporosis accompanies a number of pathological conditions, though the term has been somewhat restricted in Paleopathology to a condition described in the human skull in which the hypertrophy is accompanied by a riddling of the inner skull table. Pachyostosis is also to be distinguished from many types of osteitis deformans, such as Paget's disease, Leontiasis and other hypertrophies which are due either to infections, disturbances in the endocrine organs, faulty nutrition or other causes.

It is even to be doubted if the thickening of the bones in aquatic animals is to be properly regarded as a phase of pathology in any sense, unless we give the widest latitude to our definition of disease. I should like to suggest, therefore, that we differentiate carefully between results of adaptation and pathological results. Pachyostosis is a benign form of hypertrophy and has no relation, in my opinion, to other hypertrophies of a pathological nature.

ROY L. MOODIE
VENICE, CALIFORNIA

[1] F. Baron Nopsca: "Ueber eine neue Kreideschlange aus Dalmatien." *Paleontologische Zeitschrift*, Bd. V, Heft 3, p. 258. 1923.

QUOTATIONS

CONTRACT MEDICAL PRACTICE IN ENGLAND

THE minister of health has answered the doctors in terms of arithmetic. He conceives that, in the final issue, an actuarial basis is that on which the capitation fee for panel practice, in company with all salaries and wages, must rest. In this view he has, without doubt, the full support of the friendly societies, whose members constitute the working population of the country. These societies, in their attitude to the medical profession, have discovered themselves as economists of the old school. A man's value, they suggest, is the amount which his services can command in the open market. This doctrine, when applied to the members of the friendly societies themselves, has not, it must be allowed, always worn, in their eyes, the aspect of reasonableness which it possesses when applied to doctors. Indeed it has frequently been assailed with bitterness as the creed of a rapacious *bourgeoisie* eager to exploit the helplessness of "wage slaves." Unhappily, it is impossible to have it both ways: what is "sauce" for the doctors must be "sauce"

also for their twelve million patients. The friendly societies, in short, have appealed to a law of economics which is certain to be invoked against many of their members in days to come.

The doctors, we understand, are to be advised by their leaders to refuse the terms offered to them, though there is, of course, no question of a "strike," as that term is understood by many of their patients. In other words, they may contest the view of the minister of health and the friendly societies that their value has been correctly assessed. Their right to enter on such a struggle will scarcely be disputed. They have declared that a willing and efficient service can not be given for a smaller sum than 9s. 6d. per head per year, and no one in his senses desires an unwilling doctor who is professedly incapable of doing justice to the case. On the other hand, it may be that the doctors' arithmetic is less sound than that of Sir William Joynson-Hicks and the friendly societies. This is the real question for the public. The minister of health has made a clear and very detailed statement; it is for the profession of medicine to answer him. If he has erred, if his arguments are not sound, and if, consequently, the capitation fee proposed is not adequate to its purpose, public support will assuredly be with the doctors. If, on the contrary, the case for reduction is a good one, the doctors will begin their battle at a disadvantage.

It is, however, possible that the doctors may decide to have done with the panel system altogether on other than financial grounds. It is admittedly rather late in the day to make such a change, yet there are and always have been weighty objections to the present system of contract practice. If it is to degenerate, as seems now to be possible, into the control of a learned profession by a group of benefit societies, the objections to it will be enormously enhanced. A doctor can not lose his freedom of action in relation to his patients and at the same time retain his self-respect. He may not suffer dictation in the conduct of his practice; if his patients object to his methods they possess their own remedy. It is, of course, possible that, if resignations from the panel occur, the vacant places may be filled. But we believe that this contingency should not be suffered to bias the minds of those physicians who, whether rightly or wrongly, regard the present situation as intolerable. The public will always hold in sincere regard those men who make sacrifice for the public welfare. The decision which the doctors must now take is one of the most important in the history of their profession in this country. Let them balance all the issues and, putting personal motives aside, act as the good servants of their fellows, which, in past years, they have in the vast majority of instances proved themselves.—London *Times*.

SPECIAL ARTICLES

ON THE INFLUENCE OF A ROTATING MAGNETIC FIELD UPON GROWTH

WHETHER magnetism has any effect upon biological activities has long been a source of speculation and experimentation. The types of magnetic fields used so far for investigation have been the constant unidirectional field and the alternating field; and the result of these studies has been that the unidirectional field has no physiological effect, while the alternating field if sufficiently powerful seems to have produced visual sensations.[1]

Because of the newer ideas regarding the constitution of matter, especially with reference to the work of Thomson and of Bohr on the character of the atom, it was decided to apply the magnetic field in a different manner than heretofore. From the premise of Bohr the electrons composing the atom are in a state of stable dynamic equilibrium except during light emission and absorption; and since the electronic orbits are subject to the influence of a magnetic field it was believed that a constant, uniformly rotating magnetic field, rather than a unidirectional or alternating magnetic field, would alter the dynamic equilibrium of the atom by affecting the configuration of the electrons. Based on this hypothesis the possibility existed of changing the character of the atom, thus secondarily affecting the molecule, and thereby causing changes which could possibly be observed in the study of growth.

A constant, uniformly rotating magnetic field was obtained by a three-phase winding upon a uniform iron coil displaced in the usual manner. The coil was operated upon the service of the local power company at a frequency of 62.5 cycles per second. The strength of the field, 1,410 gausses maximum, was measured by a small exploring coil in conjunction with an electrostatic voltmeter. The inside diameter of the coil was 14.25 cm. Care was taken that the field within the coil was not distorted by the presence of iron.

The first observations were made on the rainbow trout (*Salmo irideus*). In the center of the coil eighty eggs of this species were placed in a glass vessel on a single layer of gauze through a constant stream of water passed continuously from below. A similar vessel containing the same number of eggs and situated two feet from the coil was used as a control. But since this receptacle was separated from the coil by a piece of sheet-iron one eighth of an inch thick, the magnetic field in the control area was reduced virtually to zero. The magnetic field was applied con-

1 Drinker, C. K. and Thomson, R. M., "Does the magnetic field constitute an industrial hazard"? *Jour. Indust. Hygiene*, 1921, III, 117.

tinuously for forty-five consecutive days and at the end of this time all the eggs had hatched. However, no difference either in the time of hatching, or in the general appearance and activity was observed between the fish hatched in the magnet and those in the control.

Observations were also made under the same conditions on eggs of the species *Amblystoma punctatum* which were placed in vessels similar to those used for the rainbow trout: in order to guard against any stray currents, the receptacle containing the control specimens was placed in an iron box in an adjoining room. Under these circumstances the magnetic field was applied continuously for twenty-six consecutive days, and again no difference between the specimens in the magnetic field and those in control vessel was observed.

Further experiments were carried on with rapidly multiplying organisms. Strains of a small bacillus, *B. coli communior*, as well as of a large bacillus, *B. megatherium*, were placed within a small incubator in the center of the coil. Control specimens, at the same temperature, were placed in the thermostat. Culture and staining of the bacteria were done in a uniform manner; but here also no difference in growth or morphology was observed.

These results are in accord with the conclusions of previous experimenters. All these investigations seem to infer that in the case of growth, matter is composed of atoms of which the electrons are in a state of static equilibrium. This evidence supports Thompson's conception of the nature of the atom as conceived for the solid or liquid state. On the other hand, had any changes been observed due to the influence of the magnetic field, growth would then follow more as a gaseous phenomenon, and involve the consideration of Bohr's concept of the atom. One would not be justified in concluding that growth involves only matter in the solid or liquid state; but as gases are involved also in the process of growth, it would seem that they either suffer a change in their atomic configuration and reach a state of static equilibrium, or that they are not assimilated in a state of stable dynamic equilibrium by the organism.

FREDERICK W. LEE
FERDINAND C. LEE

DEPARTMENT OF ANATOMY,
THE JOHNS HOPKINS UNIVERSITY

THE LOS ANGELES MEETING

II

WESTERN SOCIETY OF SOIL MANAGEMENT AND PLANT NUTRITION

THE Western Society of Soil Management held its second annual meeting in Los Angeles on September 20 and 21, immediately following the meeting of the Pacific Division of the American Association for the Advancement of Science. The papers were grouped into four sections, each occupying a half-day's session, according to the following program:

Thursday Morning, September 20

THE SOIL SOLUTION

The nature and promise of the soil solution: JOHN S. BURD.

The relation between the soil solution and the water extract of alkali soils: P. L. HIBBARD.

Secular changes in the soil solution: JOHN S. BURD.

The autotaxic curve as a means of studying soil colloids: A. E. VINSON.

Can we predict the crop producing power of soils from chemical analyses? W. F. GERICKE.

Thursday Afternoon, September 20

SYMPOSIUM ON ALKALI

Replaceable bases in relation to alkali soils: W. P. KELLEY.

The rôle of calcium carbonate in soil alkalinity: A. B. CUMMINS.

The relation of certain alkali salts to the growth of plants: A. R. DAVIS and D. R. HOAGLAND.

The alkali tolerance of plants considered as a phenomenon of adaptation: J. F. BREAZEALE.

The effects of sodium chloride on young orange trees and their recovery: H. S. REED and A. R. C. HAAS.

Thursday Evening, September 20

Paulais Hotel.

Business meeting and banquet.

Friday Morning, September 21

SYMPOSIUM ON SOIL MOISTURE

Comparison of established laws in hydraulics to recent investigations concerning the movement of soil moisture: O. W. ISRAELSON.

The variability in the composition of the ground water of alkali soils: E. E. THOMAS.

Soil moisture conditions above a ground water table and its relation to alkali: W. W. MCLAUGHLIN.

The movement of soil moisture: T. J. VEIHMEYER.

Friday Afternoon, September 21

THE USE OF SULFUR IN AGRICULTURE

The supply of sulfur in soils: D. S. JENNINGS.

Further studies of the gains and losses of soil sulfur: J. S. JONES.

Field experiments with sulfur as a fertilizer: W. L. POWERS.

The present status of the problem regarding the utilization of sulfur as a treatment for alkali soils: C. D. SAMUELS.

The effect of sulfur on soils: J. L. ST. JOHN.

Saturday, September 22

Visit to the Citrus Experiment Station, Riverside, California.

The society was organized at Salt Lake City in June, 1922, as the result of an "Alkali Conference" held with the Pacific Division. It was soon realized from the diversity of papers offered and interest shown that although alkali was the central theme, its

consideration involved the three-fold relation: the plant, the soil, and the soil moisture. Hence the broader scope of the society as indicated by its name. The purpose of the society is to facilitate an exchange of ideas and to promote good fellowship among the numerous soil scientists of the Pacific and Rocky Mountain States, without engaging in publication.

At the Los Angeles meeting it was decided to affiliate with the Pacific Division, but to hold program sessions of the society either immediately before or after those of the Pacific Division. The officers for the first year were: W. P. Kelley, *President,* Citrus Experiment Station, Riverside, California; O. W. Israelson, *Vice-president,* Utah Agricultural College, Logan, Utah; Robert Stewart, *Secretary-Treasurer,* University of Nevada, Reno, Nevada. The officers for the ensuing year are: A. E. Vinson, *President,* University of Arizona, Tucson, Arizona; W. L. Powers, *Vice-president,* Oregon Agricultural College, Corvallis, Oregon; D. S. Jennings, *Secretary-Treasurer,* Utah Agricultural College, Logan, Utah.

A. E. VINSON

PACIFIC DIVISION OF THE PLANT PHYSIOLOGICAL SECTION OF THE BOTANICAL SOCIETY OF AMERICA

THE Pacific Division of the Plant Physiological Section of the Botanical Society of America held its second annual meeting at Los Angeles in conjunction with the other affiliated societies of the Pacific Division of the American Association for the Advancement of Science, September 17–20. Two sessions were held on Tuesday at which papers of general physiological interest were presented and discussed. Wednesday forenoon was given over to a symposium on "Growth and Permeability" with discussion lead by Dr. D. T. MacDougal, Desert Botanical Laboratory; Dr. H. S. Reed, Citrus Experiment Station, and Drs. A. R. Davis and D. R. Hoagland, University of California. On Wednesday afternoon the Plant Physiological Section met with the plant pathologists, economic entomologists and ecologists in a symposium on "Ecological factors influencing the distribution and severity of insect pests and plant diseases." Dr. E. T. Bartholomew, of the Citrus Experiment Station, lead the discussion for the plant physiologists.

The attendance at the meetings was good and the discussions indicated a marked degree of interest in the papers presented. Judging by the interest in the meetings for the two years that this new section of the Pacific Division of the American Association for the Advancement of Science has been in existence, it has an interesting and profitable future before it.

The officers for the coming year are Dr. Geo. B. Rigg, University of Washington, *President,* and Dr. F. E. Denney, U. S. D. A., 142 So. Anderson St., Los Angeles, *Secretary.* It was left for the executive committee to choose the vice-president after it had been determined where the meetings were to be held next year.

GEORGE B. RIGG,
Secretary

THE PACIFIC COAST ENTOMOLOGICAL SOCIETY

THE ninety-first meeting of the society was held at the University of Southern California, Los Angeles, on September 11.

Upon motion of Dr. E. P. Van Duzee, seconded by R. E. Campbell, Dr. J. A. Comstock was elected chairman for the meeting and H. E. Burke, secretary.

The following members and guests were present: A. J. Basinger, H. E. Burke, R. E. Campbell, J. A. Comstock, F. R. Cole, H. S. Fawcett, C. K. Fisher, R. D. Hartman, Trevor Kincaid, A. O. Larson, Isabel McCracken, H. S. Smith, H. E. Summers, E. P. Van Duzee, Mr. and Mrs. W. H. Volck, Mr. and Mrs. W. S. Wright, Mr. Osterhout.

Problems of the amateur entomologist: W. S. WRIGHT. Discussion by Comstock, Van Duzee and Wright.

Entomology at the California Academy of Sciences: MR. E. P. VAN DUZEE. Discussion by Comstock, Wright and Van Duzee.

Curious diptera from the Philippines and adjacent regions: MR. F. R. COLE.

The alder sawfly. The European earwig: MR. TREVOR KINCAID.

The rediscovery of a lost species: MR. J. A. COMSTOCK. Discussion by Wright, Comstock and Van Duzee.

After an informal discussion the meeting adjourned.

H. E. BURKE,
Secretary pro tem.

PACIFIC SLOPE BRANCH AMERICAN ASSOCIATION OF ECONOMIC ENTOMOLOGISTS

THE members of the Pacific Slope Branch of the American Association of Economic Entomologists assembled on September 17 and proceeded with the election of new officers as follows:

Chairman	H. S. Smith
Vice-chairman	C. M. Packard
Secretary-treasurer	R. E. Campbell

Members of the Affiliation Committee are W. B. Herms, chairman, and E. P. Van Duzee.

A very satisfactory attendance was recorded and

the meeting was one of especial interest, although a number of the members were compelled to return to their homes in Berkeley because of the fire. The representation of the western district was not at all satisfactory inasmuch as the attendance was almost entirely from California. Many of the western states have not sent a representative to the meetings for several years, and it is hoped that they will realize the importance of attending the meetings in order to make the Pacific Slope Branch really worthwhile.

The program was largely in the form of a symposium discussing chiefly dusting, biological control and the relations of insect pests in the distribution of plant diseases.

E. O. ESSIG,
Secretary

PACIFIC FISHERIES SOCIETY

THE meeting of the Pacific Fisheries Association was called to order by President Cobb on September 18. Inasmuch as the minutes of the last meeting were not available these could not be read. President Cobb appointed the following committees:

I. *Nominations Committee:* Mr. W. B. Scofield, Professor Kincaid, Professor Fasten and Professor Starks.

II. *Auditing Committee:* Professor E. V. Smith and Professor Kincaid.

III. *Resolutions Committee:* Mr. Seale, Mr. W. L. Scofield, Mr. Thompson and Mr. Bowder.

IV. *Committee for Place of Next Meeting:* Mr. Crandall, Mr. Seale and Professor Kincaid.

The report of the treasurer was read and accepted. Applicants for new membership were considered, voted upon, and elected. Mr. Bowder reported arrangements for a trip around the harbor of Los Angeles for Thursday morning. The program of the afternoon consisted of a paper by Mr. Thompson, entitled, "What the State of California is doing to conserve the food fishes of Southern California." A discussion followed the presentation of the paper. At 4 p. m. the meeting adjourned to meet with the Western Society of Naturalists in order to view pictures of the birds of Laysan Island and also of the Tuna fisheries in California.

The second session of the organization was held the following morning, September 19, when the Nominations Committee reported the following officers for the ensuing year 1923–1924:

President, Dennis Winn, Seattle, Washington.
First vice-president, Will Thompson, California.
Second vice-president, C. McLean Fraser, Vancouver, B. C.
Secretary, Clarence Anderson, Seattle, Washington.
Treasurer, Clarence Anderson, Seattle, Washington.
Executive Committee, John N. Cobb, Seattle; N. B. Scofield, San Francisco; E. A. Seaborg, Seattle; J. W. Kinney, Seattle; Barton Warren Evermann, San Francisco; Alvin Seale, San Francisco.

Mr. Seale, of the Resolutions Committee, presented the following resolutions which were unanimously supported by the organization:

I.

WHEREAS, The building of dams in streams in connection with irrigation and power projects is proving a serious menace to our runs of anadromous fishes, especially when there have been installed unsuitable fishways or none at all.

THEREFORE, BE IT RESOLVED, That the Pacific Fisheries Society in convention assembled at Los Angeles, California, September 17–20, 1923, requests the U. S. Reclamation Commission, and such other public officials as may have jurisdiction in such matters, to require that the problem of assisting anadromous and other fishes in getting over such obstructions, and the young in working their way back to their natural habitat in the sea, be taken up and considered along with the engineering and other problems relating to each project; and this Society promises every aid possible in solving the biological phases of the problems.

II.

WHEREAS, It is a known fact that the salmon fisheries of Alaska are not producing as formerly, the decline being due partly to lack of adequate regulation and partly to other causes; and

WHEREAS, The Department of Commerce has been attempting to meet existing conditions by the establishment of reserves in those districts most vitally affected and has already established several such, said reserves being necessary on account of the inability to secure a comprehensive fisheries code which could be readily administered and which would adequately protect these districts; and

NOW, THEREFORE, BE IT RESOLVED, That it is the sense of the Pacific Fisheries Society in convention assembled at Los Angeles, California, September 17–20, 1923, that we heartily endorse the creation of the reserve referred to, and our Secretary is hereby instructed to send a copy of this resolution to the President of the United States, to the Secretary of Commerce, and to the United States Commissioner of Fisheries.

III.

RESOLUTIONS RE AN INTERNATIONAL FISHERIES TREATY AND AN INTERNATIONAL COMMISSION FOR THE STUDY OF FISHERY PROBLEMS OF THE NORTH PACIFIC, ADOPTED BY THE PACIFIC FISHERIES SOCIETY AT LOS ANGELES, SEPTEMBER 19, 1923.

WHEREAS, It is known that many valuable species of marine mammals such as fur seals, sea otters, elepnant seals and whales, and many species of important food fishes such as salmon and halibut, formerly occurred in the Pacific in such vast numbers as to constitute the objects of fisheries whose animal products were worth more than one hundred million dollars, and

WHEREAS, Nearly all of those great natural resources have been seriously depleted, many of them even to commercial extinction, through greed, short-sightedness and ill-considered fishery methods, and

WHEREAS, It is known that small remnants of fur-seal and sea-otter herds and small numbers of whales and of other commercially valuable species still remain in certain places, and

WHEREAS, The rapid recovery of the Alaska fur-seal herd in the short period of 10 years from complete commercial ruin to an annual production of more than $1,500,000.00, as a result of the international fur-seal treaty of 1911, demonstrates conclusively the wonderful recuperative power of such depleted natural resources of the sea under international cooperation, and justifies the belief that other depleted fisheries can be rehabilitated through similar cooperation among the nations concerned, and

WHEREAS, It is conservatively estimated that these resources when rehabilitated will yield to the world a regular annual product of more than one half billion dollars in value: therefore, be it

RESOLVED, That the Pacific Fisheries Society strongly urges the Honorable the Secretary of State to invite the various maritime countries of the world, particularly those bordering on, or interested in, the Pacific, to send delegates to a convention to meet in Washington at an early date for the purpose of negotiating an International Treaty for the restoration, proper utilization and conservation of the vanishing natural fishery resources of the Pacific; and, be it further

RESOLVED, That the Pacific Fisheries Society recommends that the governments of the countries bordering on the Pacific enter into correspondence for the purpose of establishing an International Commission for the scientific study of the biology, physics and chemistry of the Pacific in the interest of the restoration, proper utilization and conservation of its vanishing natural resources.

NATHAN FASTEN,
Secretary

THE WESTERN SOCIETY OF NATURALISTS

THE Western Society of Naturalists met on September 18 and 19, during the general meetings of the Pacific Division of the American Association for the Advancement of Science at the University of Southern California. On the morning of the eighteenth, the society had a joint session with the Cooper Ornithological Club, and in the afternoon a joint symposium with the Ecological Society of America. Immediately following the symposium Mr. Donald R. Dickey, of Pasadena, showed his beautiful motion pictures of the birds of Laysan Island before a large and very enthusiastic audience.

On Wednesday morning, the nineteenth, there was a short business meeting of the naturalists, at which the officers for the next year were elected as follows: H. B. Torrey, University of Oregon, *president*; Nathan Fasten, Oregon Agricultural College, *vice-president*; C. O. Esterly, Occidental College, *secretary-treasurer*; A. B. Ulrey, University of Southern California and Le Roy Abrams, Stanford University, *members of the Executive Committee*. After the business meeting there was a joint session with the Ecological Society for the presentation of papers of ecological interest.

Two sessions were necessary for Wednesday afternoon. At one of these, which was in conjunction with the Southern California Section of the American Society of Mammalogists, Mr. Dickey again delighted a large audience, this time with his motion picture, "Game trails of the north woods." The other session was for the reading of papers, most of which were concerned with physiology.

The following are the titles of the papers read at the different sessions:

Tuesday morning, September 18

Additions to the distribution records of the Drosophilinae of southern California: CATHERINE V. BEERS.

Sonic depth finder and some possible uses in marine-biological collecting: W. C. CRANDALL.

The need of another international fur-seal treaty: BARTON WARREN EVERMANN.

Some observations on the bird life of Death Valley: J. GRINNELL.

Barriers in relation to species-forming: DAVID STARR JORDAN.

The geologic history of the fox sparrows: J. EUGENE LAW.

Some factors in fish classification: E. C. STARKS.

Notes on the present status of the band-tailed pigeon on the Pacific Coast: W. P. TAYLOR.

A remarkable Anthoceros: D. H. CAMPBELL.

Tuesday afternoon, September 18

Joint symposium with the Ecological Society of America. Subject: Evolutionary and ecological aspects of distribution.

The origin and affinities of the floral elements of California: LE ROY ABRAMS.

The ecological and distributional features of the deserts of California: FORREST SHREVE.

Isolation as an evolutionary factor, with special reference to birds and mammals in California: J. GRINNELL.

Some factors in the evolution of desert mammals: F. B. SUMNER.

Wednesday morning, September 19

Joint session with the Ecological Society of America.

Recent studies on microplankton of the southern California region: W. E. ALLEN.

Some features of the vegetation and the climate of arid South Africa: W. A. CANNON.

Factors in survival and growth of juvenile Unionidae: B. J. ANSON and A. D. HOWARD. (Read by A. D. Howard.)

Infertility of transplanted oysters: TREVOR KINCAID.

Wednesday afternoon, September 19

First session

Science publicity: W. E. ALLEN.

The sea environment of natural resources contrasted with that on the land in relation to conservation: BARTON WARREN EVERMANN.

International auxiliary language: present status and prospective value to science: H. B. FROST.

Life-history notes on the tree mouse of the humid coast belt: A. B. HOWELL.

Uniformity in the use and connotation of certain place names: E. C. JAEGER.

The biotic factor in forestry: E. C. MUNNS. (Read by A. G. Vestal.)

The conservation of upland game birds in the state of Washington: W. P. TAYLOR.

Conservation of fur seals: G. DALLAS HANNA.

Second session

Experiments in the transplantation of the hypophysis in tadpoles: B. M. ALLEN.

Comparative stages in the spermatogenesis of various cancer crabs: NATHAN FASTEN.

Influence of time and temperature on the rate of growth of certain tadpoles: H. S. FAWCETT.

Control of polarity and growth by means of the electric current: E. J. LUND.

Continuous production of electrical energy by Obelia: E. J. LUND.

The cytology and breeding behavior of two species hybrids of the genus Crepis: MARGARET MANN.

Acid production in excised mammalian muscle: E. G. MARTIN and A. C. AMBLER. (Read by E. G. Martin.)

The effect of oestruation on activity of the albino rat: J. R. SLONAKER.

A comparison of the effect of desiccated thyroid and thyroxin on the structure and behavior of Paramecium: M. C. RIDDLE and H. B. TORREY. (Read by H. B. Torrey.)

The effect of desiccated thyroid on the color and moulting of the common fowl: BENJAMIN HORNING and H. B. TORREY. (Read by H. B. Torrey.)

The inhibitory action of desiccated thyroid on the development of the testis in fowls: BENJAMIN HORNING and H. B. TORREY. (Read by H. B. Torrey.)

Lutear cells and sexual dimorphism of feathering in wild birds: H. B. YOCOM. (Read by H. B. Torrey.)

Demonstration: Life-history of the round sting ray, Urolophus halleri: A. B. ULREY.

C. O. ESTERLY,
Secretary

PACIFIC BRANCH PALEONTOLOGICAL SOCIETY

THE meeting of the Pacific Branch Paleontological Society was called to order by Vice-president A. O. Woodford at 9 a. m., on September 18, at the Los Angeles Museum of History, Science and Art, Exposition Park.

The following papers were then read:

Note on the fossil content of the San Rafael limestone of the San Rafael mountains, Santa Barbara County, California: M. C. ISRAELSKY.

Marine Eocene horizons of Western North America: B. L. CLARK.

A study of the faunal and stratigraphic relations of the Middle and Lower Miocene of the Santa Ana Mountains, Southern California: C. D. MESERVE.

The cretaceous deposits of the Northern Andes: F. M. ANDERSON.

Fossil diatoms of California from a historical standpoint: C. DALLAS HANNA.

The meeting adjourned for luncheon.

At 2.15 p. m. the meeting was again called to order by Vice-president A. O. Woodford and the following papers were read:

Protesting the species-maker: The point of view of the practical paleontologist: A. J. TIEJE.

The western extent of the painted desert formation and its fauna: C. L. CAMP.

Classification and relationships of the edentates of Rancho La Brea: C. STOCK.

Program for further study of succession of faunas and floras in the John Day region of Eastern Oregon: JOHN C. MERRIAM.

CHESTER STOCK,
Secretary

THE ECOLOGICAL SOCIETY OF AMERICA

Tuesday morning, September 18

The problem of relative values in a life cycle: W. E. ALLEN. The paper emphasized the need of adequate attention to all stages of the life cycle, as well as to the particular stage immediately concerned in the problem at hand.

Field studies of carbon dioxide absorption by plant leaves: FORMAN T. MCLEAN. (Read by title.) Methods and results of experiments on leaves of coconut, rice and sugar-cane were described. The food-manufacturing power of sugar-cane is lowered when the leaf-tips roll up at mid-day in dry weather. This lowering of rate becomes more marked as the drought period lengthens.

The leaf structure of Acacia: HOWARD DE FOREST. (Read by title.)

The influence of precipitation on growth of Monterey pine and redwood: FORREST SHREVE. Diameter increase as indicated by rings in the stump is only a rough measure of increase at different heights in the trunk. Individual trees show very little agreement with each other and with the precipitation, except during a few of the years for which records are available. For these few years agreement was close. Tree-ring records should therefore be interpreted with caution.

California grassland vegetation in the vicinity of Palo Alto: ARTHUR G. VESTAL. The chief dominants are Stipa setigera, Koeleria cristata and Melica imperfecta. Of the 150 grassland species of the area, 73 are annuals, a high proportion. The most conspicuous and abundant